HAWAII AUDUBON SOCIETY

‘ELEPAIO

Journal of the Hawaii Audubon Society

For the Protection of Hawai‘i’s Native Wildlife

VOLUME 80, NUMBER 5 **SEPTEMBER / OCTOBER 2020**

Can Asia end its uncontrolled consumption of wildlife? Here’s how North America did it a century ago

By Roland Kays

Research Associate Professor of Wildlife and Scientist at NC Museum of Natural Sciences, North Carolina State

The following article was first published on June 17, 2020 on “The Conversation”, a nonprofit news site unlocking ideas from academic experts, at *https://theconversation.com*. Roland Kays receives funding from The National Science Foundation. North Carolina State University provides funding as a member of The Conversation US.

THE CONVERSATION

It was a dark time for animals. Poaching was rampant. Wild birds and mammals were being slaughtered by the thousands. An out-of-control wildlife trade was making once-common animals hard to find and pushing rare species into extinction.

This is the story of North America a century ago, and of Asia today. But there was a surprise ending in America, and I believe there could be one in Asia.

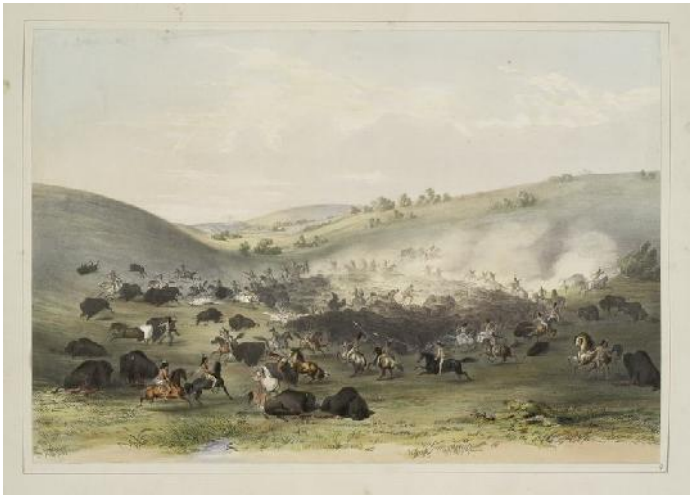
Today North America has abundant wildlife. Much of my research as a wildlife biologist focuses on documenting the rebound of species that once were hunted into scarcity, including wolves, deer and fishers.

This is the outcome of what I call the North American wildlife conservation miracle. A century ago, with many species on the brink of extinction, people here stopped overusing wildlife and created a new culture of conservation.

Today unregulated wildlife trade in Asia is decimating species in much of the world, and now even threatens humans through the likely spillover of the SARS-CoV-2 virus from bats or pangolins to humans. Suddenly the harm caused by this rampant wildlife trade is in the spotlight, which creates an opportunity to pull off a conservation miracle in Asia. I hope lessons from the American experience can help.

Out-of-control wildlife trade

In the late 1800s and early 1900s the seemingly endless bounty of America’s wildlife began to run out. By 1878, three northeast species – the Labrador duck, great auk and sea mink – went extinct. The eastern elk, the largest mammal in most eastern states, followed in the 1880s. Even highly resilient species like white-tailed deer and Canada goose declined sharply. Bison once numbered 30 million, but were down to a few hundred animals by the late 1880s.



Rare Book Division, The New York Public Library. (1845). *Buffalo hunt, surround.* Retrieved from *http://digitalcollections.nypl.org/items/510d47da-dbef-a3d9-e040-e00a18064a99*

The pioneer delusion of endless bounty was replaced by an acceptance that there was nothing they could do about it. American settlers had a “manifest destiny” mindset, believing they were destined to expand across the continent, and accepted that the loss of other species was an inevitable consequence of that.

Then the bison didn’t go extinct.

Back from the brink

For some Americans, including Theodore Roosevelt, the prospect of erasing an iconic species like bison was a call to action. They formed the American Bison Society, which bred bison at New York's Bronx Zoo and shipped them west in hope of repopulating their former ranges.

As president, Roosevelt helped create some of the first national wildlife refuges and signed laws restricting the wildlife trade. But the bulk of the work was done by states and individuals.

Americans spoke out against large-scale hunting. George Bird Grinnell, editor of the sporting journal Forest and Stream, used the magazine as a platform to call for protecting birds. Grinnell later teamed with Teddy Roosevelt to create the Boone and Crockett Club, a group of conservation-minded hunters. Two Boston socialites, Harriet Hemenway and Minna Hall, formed the Massachusetts Audubon Society and worked to end the custom of adorning ladies' hats with plumes from wild birds.

By the 1930s every state had a wildlife agency funded by taxes and hunting license fees. These agencies shut down most wildlife harvests, protected and restored habitat and reintroduced animals that had been eradicated, such as turkeys and otters.

Brush and ink drawings of Mallards by Jay N. "Ding" Darling. The first U.S. 'duck stamp,' issued by the federal government in 1934. Purchase of a current duck stamp was required to hunt migratory waterbirds, with proceeds funding migratory bird conservation, photo credit USFWS *https://www.fws.gov/birds/get-involved/duck-stamp/federal-duck-stamp-gallery-1934-1935.php*.

When hunting resumed, states managed when it could take place and how many animals a person could harvest. Ecology was a new field, and scientists like Aldo Leopold adapted its principles to create wildlife management as a new branch of study that could help inform these regulations.

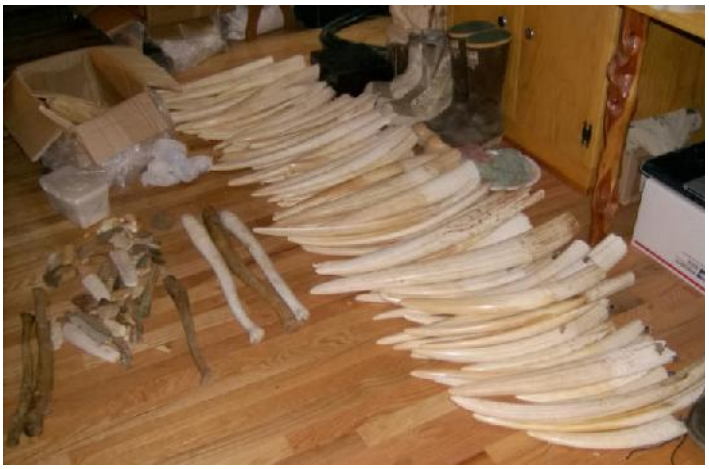
Today deer, turkey, bear, elk, ducks and geese are abundant in many parts of North America. State governments carefully regulate harvests. Wildlife is not sold commercially for food in the U.S., unlike Australia and much of Europe. Trapping and sale of fur-bearing animals like beaver and fisher is managed sustainably.

Of course, wildlife conservation in North America still faces serious challenges, including habitat loss, climate change and pollution. But unsustainable hunting is no longer a problem, and legal hunting helps fund conservation for all species.

Will Asia stop eating wildlife?

Over the last 20 years, demand for wildlife products in Asia has driven a collapse of animal populations there, as well as in Africa and Latin America. Most larger mammal species outside of North America today are primarily threatened by poaching for food, art and traditional medicines of dubious effectiveness.

But it seems no species have been safe from this scourge. Consumers will pay high prices for exotic dishes like braised salamander and soup made from the swim bladder of the totoaba, a giant Mexican fish.



Walrus Tusk. Service investigation of illegal trafficking in walrus ivory, photo credit USFWS *https://digitalmedia.fws.gov/digital/collection/natdiglib/id/14218/rec/7*.

Conservationists hope to seize on the tragedy of the SARS-Cov-2 spillover to end the global wildlife trade, or at least regulate it more tightly. What lessons can the North American experience offer? First, it is critical to reduce demand. This was a slow process a century ago. But

COVID-19 has cast a stigma on wildlife products that could help turn the tide in Asia, just as public shaming in the U.S. helped end demand for things like feather hats and fur from spotted cats.

Today animal welfare advocates are using social media to urge Asian consumers to avoid products made from endangered animals. In response to efforts like these, China banned domestic sales of ivory in 2017, and Chinese consumption of shark fin soup has declined sharply over the past decade.

Second, this effort will involve many players, including national governments, regional authorities and nongoverment organizations like Save Vietnam's Wildlife, Bat Conservation India Trust and Save Pangolins. These groups understand local culture and politics, and can connect directly with communities where wildlife is hunted and sold.

Finally, we need some optimism. The persistence of the bison a century ago showed Americans that extinction wasn't the only option. It is important now to monitor wildlife populations so that efforts can target species most at risk, and to celebrate recoveries that might be early signs of a second conservation miracle.

*** END ***

HAS provides letter of support for the acquisition of native forest on the Big Island for conservation purposes

June 12, 2020

Mr. Chris West, Direct Rocky Mountain Regional Office
1875 Lawrence St, Suite 320, Denver, CO 80202

RE: Proposed purchase of old growth koa forest on east slope of Mauna Kea

Dear Mr. West:

The Hawaii Audubon Society strongly supports the Trust for Public Land's proposed acquisition of 13,130 acres of koa forest on Hawai‘i Island on the east slope of Mauna Kea, which will be conveyed to the State of Hawai‘i Department of Land and Natural Resources, Division of Forestry and Wildlife (DLNR). The Mission of the Society is to foster community values that result in the protection and restoration of native wildlife and ecosystems and conservation of natural resources through education, science and advocacy in Hawai‘i and the Pacific. Founded in 1939 the Society has long advocated for the protection of endangered species and their habitat in the native forests of the island of Hawai‘i.

- *The project will conserve the largest privately owned area of old growth koa forest (acacia koa) remaining in the state, and the eighth largest private landholding on the island.*
- *The adjacent Hilo Forest Reserve is comprised of approximately 64,000 acres of non-contiguous public land. This acquisition will connect three non-contiguous sections of forest and provide community and management access to 5,000 acres of public lands that are landlocked.*
- *The property is part of Mauna Kea's interconnected upland forest landscape of over 215,000 acres, including the Hakalau National Wildlife Refuge, the State Forest Reserve System, the USDA Forest Service's Experimental Tropical Forest, and private lands. Under state ownership the property would be eligible to join the Mauna Kea Watershed Alliance, which encompasses 300,000 acres above the 2,000 ft elevation on Mauna Kea, and would enhance coordinated management of forested watersheds.*
- *The property is habitat for 28 listed species, including four listed native species – the Hawaiian hawk (G2-imperiled), Hawaiian duck (G1-critically imperiled), Hawaiian coot (G2), and Hawai‘i's only endemic land mammal, the Hawaiian hoary bat (G2/T2 – species secure/subspecies imperiled).*
- *Upper elevation forest on the property is likely recovery habitat for four endangered forest birds present at the adjacent Refuge – the Akiapōlā‘au (G1), the Hawai‘i Creeper (G1), Hawai‘i ‘Ākepa (G1), and ‘Ō‘ū (G1). The forest is habitat for three other native forest birds with declining populations – the Hawai‘i ‘Amakihi (G3-volunerable), ‘Apapane (G3-vulnerable), and Hawai‘i ‘Elepaio (G3-rare w/ restricted range).*
- *The forest is also habitat for three federally listed plants, including the critically endangered Clermontia peleana (G1T1 – critically imperiled), an extremely rare lobelia with only 5 known specimens in the wild. The Hawai‘i Plant Extinction Prevention Program protects plants with fewer than 50 individuals in the wild and considers this property to be likely habitat for 17 other federally listed plants found on adjacent lands.*
- *Over 60 miles of perennial streams and scenic waterfalls flow and cascade through the property and on to*

the ocean. The Hawai'i Stream Assessment identifies two streams—Hanawi and Honoli'i—as "outstanding," and among the largest and highest quality streams in the state with a rich complement of native stream fauna and pristine water supporting ten Hawai'i species of greatest conservation need: two crustaceans, one snail, three aquatic insects, and four freshwater fish (gobies). These streams provide nutrients and freshwater to support healthy nearshore estuaries. Coordinated management of the upper watershed will also reduce erosion and brown-water events the mouth of Honoli'i stream.

Conservation of the property is supported and consistent with the following federal, state, and local plans:

- *The USFWS Land Protection Plan for the Hakalau National Wildlife Refuge (2012) recommended acquisition of this property's due to its nationally significant rainforest, wetland and aquatic habitat for federally listed species. The project did not receive funding, but USFWS strongly supports state acquisition and management.*
- *The State Wildlife Action Plan (2015) identifies this property as a priority conservation acquisition needed to enhance habitat for 18 species of Greatest Conservation Need, including forest birds, waterbirds, Hawaiian hawk, Hawaiian hoary bat, fish and invertebrates.*
- *The World Conservation Congress Legacy Commitment: "30 by 30 Watershed Forests Target" (2016) commits the State to protecting 30% of Hawaii's highest priority watersheds by 2030, including this property, which would contribute to meeting 5% of the state goal. Native koa/'ohia forests are key watershed species that absorb rainfall and mist, and recharge the island's underground water aquifers.*
- *The State's Forest Action Plan (2016) sets goals to sustainably manage koa and non-timber forest products, increase public recreational access of surrounding state lands, protect and restore native species and control invasive species, all of which would be accomplished through this project.*
- *The County's Community Hamakua Development Plan (2018) prioritizes the protection of agricultural lands and open space, upland forests, ecosystems and watersheds, consistent with this project.*
- *The forest provides invaluable ecosystem services. It recharges the East Mauna Kea Aquifer, which supplies water to Hilo, the largest city on the island (population 60,000) and several rural communities. Seventy-seven percent of the aquifer's water is used for agriculture and the remainder for municipal, industrial, and domestic purposes.*

The property is threatened with clear-cut logging, subdivision, and development. 1,264 acres are zoned agriculture where logging can occur without a permit. 11,866 acres of upper elevation forest are located in the conservation zone (resource subzone) and can be logged with a conservation district use permit. In the past koa has been logged without a permit in this area. State ownership will ensure that the koa forest is protected and sustainably managed.

In sum, the Hawaii Audubon Society strongly supports the proposed purchase of 13,130 acres of koa forest on Hawai'i Island on the east slope of Mauna Kea by the Trust for Public Land for the purpose of conservation and permanent preservation and protection.

Sincerely,

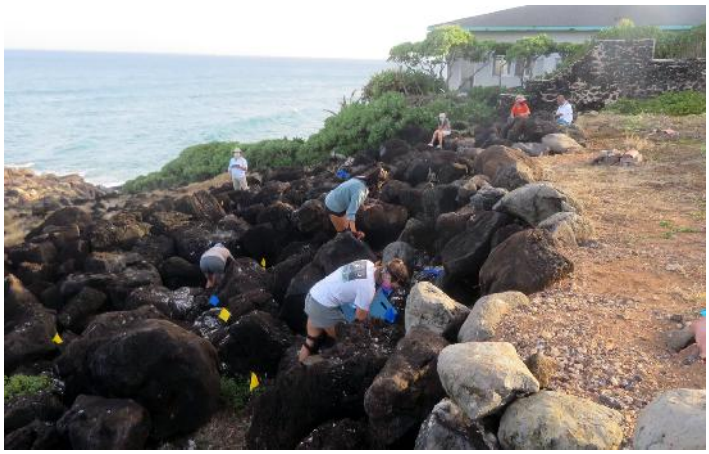
Linda M. B. Paul

President

Freeman Seabird Preserve Update Annual Egg Count 2020

This year's annual active nest count on July 14 at Freeman Seabird Preserve (FSP) set yet another record!

A small group of experienced volunteers counted active nests of the Wedge-tailed Shearwater population while practicing social distancing. There has been a steady increase over the past couple of years, with 358 active nests this year, compared to 318 active nests in 2019, and 313 in 2018.



Volunteers carefully searching for eggs under the lava rocks at FSP, photo credit Alice Roberts.

Final Rule to Remove the Hawaiian Hawk from the List of Endangered and Threatened Species

The following article is a press release, which was first published by USFWS *on https://www.fws.gov/news/ShowNews.cfm?ID=68BF4631-5056-9613-D80362B2AAEBD6C1* on January 2, 2020.

HONOLULU, Hawai‘i — The U.S. Fish and Wildlife Service has published a final rule removing the ‘io (Hawaiian hawk) from the Federal List of Endangered and Threatened Wildlife. The ‘io was listed in 1967. Since then, improved monitoring, partner-led landscape-level conservation efforts and the species’ demonstrated resilience now indicate it no longer meets the definition of threatened or endangered.

The delisting is based on studies showing range-wide population estimates have been stable for more than 30 years. The ‘io is nesting and foraging successfully in both native and altered habitats and has use of large areas of managed habitat. Based on the Service’s analysis, the ‘io is no longer at risk of extinction, now or in the foreseeable future.

The Service published a proposed rule to delist ‘io and post-delisting monitoring plan for public review and comment multiple times, most recently for 30 days on October 30, 2018. The Service reviewed and fully considered all comments received during all the comment periods from the peer reviewers, state and federal agencies, and public on the proposed delisting rule.

“It is gratifying to say this species, listed more than 50 years ago, has a population secure enough to remove it from the list of threatened and endangered species” said Robyn Thorson, Regional Director, U.S. Fish and Wildlife Service, Columbia Pacific Northwest & Pacific Island Regions.

The Service also prepared a final post-delisting monitoring plan for the ‘io and its habitat designed to help ensure it remains secure from the risk of extinction after removal from the Federal List of Endangered and Threatened Wildlife. The finalization of the delisting of the ‘io will not affect the protection provided to the species by the Migratory Bird Treaty Act or Hawai‘i state law.

For more information go to: *www.fws.gov/pacificislands*

*** END ***

Initial Field Report on Hawaiian Cladonia (lichenized Ascomycota)

By Carly Anderson Stewart, PhD Candidate (CU Boulder)

The following is a research summary by 2018 Winter/Spring HAS Research Grant Awardee Carly Anderson Stewart.

In June 2019, the islands of Maui, Moloka‘i, and Kaua‘i were surveyed for the large, charismatic lichen genus *Cladonia*. The Hawaiian Islands have produced smaller species radiations within several large lichen families, such as the *Lobariaceae* (Lucking et al. 2017) and the *Cladoniaceae* (Stenroos 1993), and this area is thought to be an area of high biodiversity for many under-surveyed lichen groups.

The *Cladoniaceae* are a large, global lichen family with incredible variation in morphology, chemistry, and habitat type. In particular, *Cladonia sensu lato* is an iconic genus on account of its large, visually stunning thalli and outsized importance to ecosystems and certain mammals such as reindeer (Ahti 2000, Athukorala et al. 2015, Stenroos and DePriest 1998).

Not surprisingly, these ‘reindeer lichens’ are among the most studied groups of lichens globally (Ahti 2016). However, despite several attempts to characterize the Hawaiian archipelago’s endemic *Cladonia* and describe several species that likely are new to science (Abbayes 1947, Magnusson 1956, Klement 1966, Smith 1981, Stenroos 1993), there are still many unanswered questions about the evolutionary history of *Cladonia* on these islands. For instance, several global species have been recorded on the island, but without subsequent confirmation. In contrast, approximately twelve species are thought to be endemic to the islands, including several that have been undescribed due to lack of available tissue for analysis. At least two of these endemic species appear to be restricted only to west Maui and should be investigated for conservation priority in the near future. Several species recorded on the islands are also likely misidentifications, like C. *aggregata, C. chlorophaea, C. coniocraea, C. corallifera, C. digitata, C. erythrosperma, C. fimbriata, C. furcata, C. gracilis, C. grayi, C. mexicana, C. phyllophora, C. pyxidata, C. sphacelata*, and *C. scabriuscula*. Table 1 outlines these details (19 species are recorded but unconfirmed on the islands are not listed) (Stenroos 1993).

This survey was designed to help build off previous research and answer the basic questions: 1) Which species of *Cladonia* exist in Hawai‘i? 2) Are there undescribed taxa in

Hawai‘i that constitute new species? Not only are these questions vital for furthering lichen evolutionary biology research, we simply need more data in order to understand where there are areas of conservation priority and whether there are more endemic species to consider.

Nearly all sites surveyed were host to *Cladonia* species. Fortunately, most sites hosted many species! Interestingly, however, the Lahaina Pali trail in Maui was the only site to host no species of *Cladonia*, which is known to be a versatile genus occurring nearly globally.

Species (*Cladonia* sensu lato)	Endemic status	Location	Sp. nov. status
adsperso	Endemic	Most islands	-
asahinae	-	Most islands	-
bellidiflora	-	Most islands	-
coniocraea	-	Most islands	-
corniculata	-	Most islands	-
didyma	-	Most islands	-
didyma var. vulcanica	-	Most islands	-
farinacea	-	Most islands	-
fimbriata	-	Most islands	-
kauaiensis	Endemic	Kauai	-
lelodea	Endemic	Most islands	-
leprosula	-	Most islands	-
macilenta	-	Most islands	-
mauiensis	Endemic	Maui	-
muscigena	-	Most islands	-
oceanica	Endemic	Most islands	-
ochrochlora	-	Most islands	-
pleurota	-	Most islands	-
prostrata	-	Most islands	-
pycnoclada	-	Most islands	-
pyxidata	-	Most islands	-
rangiferina	-	Most islands	-
scabriuscula	-	Most islands	-
skottsbergii	Endemic	Most islands	-
skottsbergii f. skottsbergii	Endemic	Most islands	-
squamosa	-	Most islands	-
fruticulosa (polyphylla)	-	Most islands	-
magnussonii	Endemic	Maui	-
merochlorophaea	-	Most islands	-
poecilocladd	Endemic	Most islands	Possible sp. nov.
fuscescens	-	Most islands	-
angustata	-	Most islands	-
cenotea	-	Most islands	-
solitaria	Endemic	Maui	-
Cladonia sp. 1	Endemic	Kauai	Possible sp. nov.
Cladonia sp. 2	Endemic		Possible sp. nov.

Table 1: Cladonia species thought to exist in Hawai‘i

I suspect the strong solar radiation on this rocky trail is simply too harsh for a non-crustose lichen species to survive…there are no humid microhabitats on this trail!

Conversely, I estimate that the Polipoli Spring State Recreation Area will have the highest number of species (and likely holds the highest biomass of lichens as well).

Using these Hawaiian specimens as well as *Cladonia* collected from around the world, future research will focus on building a global phylogeny–a tree of life–of the genus *Cladonia*.

This evolutionary tree will then be used to discover whether specific characteristics of the lichens–such as podetial height, conidial gel color, and altitude–are associated with increases or decreases in speciation. Learning these types of characteristics will help lichenologists discover what actually triggers speciation in fungi and will help inform future conservation analyses and actions.

When collecting lichens with the goal of maximizing number of species, you want to look for as many different habitats as possible and cover a lot of ground. During this short field season, I hiked over 70 miles, spanned 10,000 feet of elevation, and collected on three islands: Maui, Moloka‘i, and Kaua‘i. These islands are rich in *Cladonia* biodiversity and I left with hundreds of new specimen vouchers which will be identified, processed for metadata, DNA-extracted, as well as duplicated and sent to Hawaiian and global herbaria. This work has been temporarily put on hold due to the pandemic, but soon herbaria and laboratories will be open for continuing research on these interesting symbiotic organisms. Look for my upcoming final report for a checklist of Hawaiian *Cladonia* as well as reports on new or rediscovered species from this highly biodiverse archipelago.

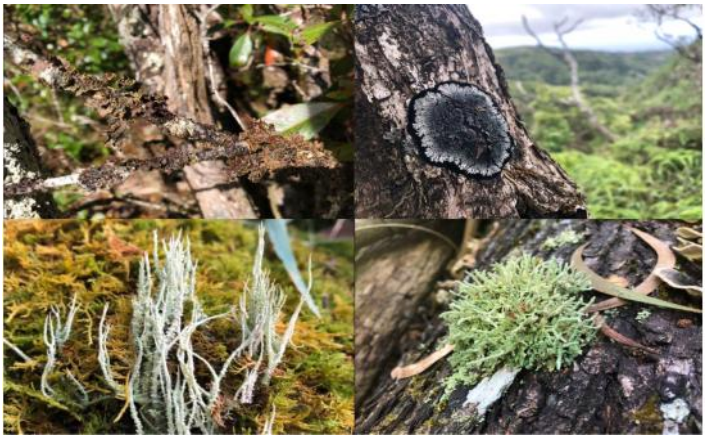


Figure 1: (clockwise from top left) 1. (clockwise from top left) 1. *Pseudocyphellaria* on Moloka‘i 2. A beautiful *Pannaria* on Maui 3. A delicate *Cladonia* on Moloka‘i 4. A lush *Cladonia* in Polipoli Springs, Maui

Hawaii Audubon Society Membership/Donation Form

The mission of the Hawaii Audubon Society (HAS) is to foster community values that result in the protection and restoration of native wildlife and ecosystems and conservation of natural resources through education, science and advocacy in Hawai'i and the Pacific. Founded in 1939, HAS is an independent non-profit 501(c)(3) organization and does not receive dues paid to the National Audubon Society. Thank you for supporting your local Hawaii Audubon Society.

☐$25 Hawaii Audubon Society Regular Member
☐$15 Hawaii Audubon Society Student Member
☐$40 Hawaii Audubon Society Family Membership
☐$100 Hawaii Audubon Society Supporting Member

International Membership:
☐$28 Canada & Mexico
☐$33 Other

☐$_____ Donation

Donations are tax-deductible and greatly appreciated.

Name: _____

Address: _____

Phone: _____ Email: _____

☐Email me the 'Elepaio ☐Mail me the 'Elepaio ☐Email me volunteer opportunities, updates, & field trips

Please make checks payable to **Hawaii Audubon Society.**
Mail form and payment to Hawaii Audubon Society, 850 Richards St, Suite 505, Honolulu, HI 96813.
Email: hiaudsoc@gmail.com *http://www.hawaiiaudubon.org* Phone: (808) 528-1432

Mahalo for your concern and commitment to protecting Hawai'i's native wildlife and ecosystems.

Announcements

Welcome Home to Shorebirds:
Paikō Lagoon Wildlife Sanctuary

September 19, 2020, 10:30am, meet on Kuli'ou'ou Road Let's welcome our migratory shorebirds as they return from their extensive travel to enjoy the Hawaiian Islands for the fall and winter months. Please call or text **808-864-8122** and leave your name and phone number. Leader: Alice Roberts (HAS Board Member).

HAS Annual Meeting & Members Dinner

This year's HAS Annual Membership Meeting and Dinner is currently scheduled for Wednesday, ***November 18, 6 - 9 pm*** *at the* ***Waikiki Yacht Club, ticket price $45****.*

This event will include a preview of the new and expanded ***7th Edition of Hawaii's Birds****, which will be available for purchase in 2021. The 7th Edition contains important information on conservation actions and issues for native birds, as well as fascinating references to Hawaiiana.*

Over 50 local photographers have provided their beautiful bird photos without charge for use in the 7th Edition. To honor their contributions and to share our appreciation, the evening's program will include a viewing of new photos, which appear in the book, and presentations by several of the photographers. The HAS Board of Directors is committed to offering a virtual option for enjoying the program.

We are also planning for the possibility that a virtual Membership Meeting and presentation may be our only option due to COVID-19 concerns. Please ***Save the Date*** *and check the HAS website, as well as the Nov/Dec 'Elepaio for more details on our main event.*

If you can't or don't feel comfortable attending an in-person meeting, we very much appreciate a donation of any amount!

'Elepaio ISN 0013-6069
Managing Editor: Susanne Spiessberger
Scientific Editor: Glenn Metzler

The 'Elepaio is printed on recycled paper and published six times per year.

Hawaii Audubon Society
850 Richards St, Suite 505, Honolulu, HI 96813
(808) 528-1432
hiaudsoc@gmail.com
http://www.hawaiiaudubon.org

HAWAII AUDUBON SOCIETY
850 RICHARDS ST, SUITE 505
HONOLULU, HI 96813-4709
(808) 528-1432
hiaudsoc@gmail.com
http://www.hawaiiaudubon.org

Nonprofit Organization
U.S. Postage
PAID
Honolulu, Hawai‘i
Permit Number 1156

ADDRESS SERVICE REQUESTED

Table of Contents

Give Aloha: Foodland's Annual Community Matching Gifts Program

While shopping at any Foodland, Foodland Farms, or Sack N Save in September, please consider making a donation to HAS. A portion (up to $249) will be matched by Foodland Hawaii. Use your Maika‘i Card and tell the cashier our **Organization ID Code: 77189.**

Amazon Smile

Or, support HAS year round through Amazon’s Smile program. Amazon will donate 0.05% of your purchase. Go to *http://smile.amazon.com/ch/99-6006829* and designate Hawaii Audubon Society as your charity.

MAHALO FOR YOUR SUPPORT!